IMPROVING HEALTH OUTCOMES: BLOOD PRESSURE

ADAPTIVE CHANGE IN AMBULATORY PRACTICE

Introduction

Despite their best intentions, many ambulatory care practices struggle to create and sustain desired changes in care and patient outcomes. The **"Adaptive change in ambulatory practice" (ACAP)** program is based on the Comprehensive Unit-based Safety Program (CUSP), which hospital-based teams have successfully used to improve inpatient care around the globe. The ACAP program, created by Johns Hopkins Medicine in collaboration with the American Medical Association's "Improving Health Outcomes: Blood Pressure" (IHO: BP) initiative, provides ambulatory teams with a framework for leveraging the experience and knowledge of all practice or health center team members to improve outpatient care.

Lasting improvements in care delivery require both technical and adaptive work. Technical work addresses problems where a well-defined solution already exists, such as creating an evidence-based checklist. Adaptive work addresses problems that lack straightforward solutions, such as integrating the attitudes, values, beliefs and behaviors of all those who deliver care to build a workflow that makes it easy to follow a checklist or protocol every time.

The **M.A.P. (Measure accurately, Act rapidly, Partner with patients, families and communities)** checklists for improving blood pressure control represent an example of the need for both technical and adaptive work. The checklists provide technical information on how to measure, act and partner. Combining this with adaptive work helps create the culture change needed for success and sustainability in implementing technical solutions.

The following case study illustrates why technical work alone is not enough, and why adaptive work is also needed to drive improvements in care delivery:

> **Mr. Jones** is a lively 72 year-old man with a history of hypertension, osteoarthritis and allergic rhinitis. As he enters Arcadia Primary Care he interacts with several people. First he checks in with Arcadia's receptionist **Judy Thompson**. Then medical assistant **Jim Hart** brings him to the examination room, takes his vital signs and records his blood pressure (BP) as 154/92 mm Hg in the electronic medical record (EMR). After that his primary care physician **Dr. Jeanne Green** enters the room and examines him, answers all his questions and refills his prescriptions. Finally, he stops by Judy Thompson's desk on his way out to schedule a return appointment in six months.
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> Unfortunately, Dr. Green does not see Mr. Jones' BP until she sits down to write her notes that evening—in part, because vital signs recorded by Jim Hart go into a section of the EMR that she normally does not open during the patient visit. Well aware that clinical trials link even mildly uncontrolled hypertension with significantly increased risk for heart attack and stroke, Dr. Green asks Judy Thompson to call Mr. Jones and schedule an earlier return appointment. However, the earliest opening in Dr. Green's schedule is three months later.
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> At the follow-up visit Mr. Jones' BP is 148/92 mm Hg. He tells Dr. Green that when he measures his BP at home it is lower, although he does not recall the exact numbers and did not bring the readings with him. Unsure how Jim Hart measured Mr. Jones' BP, Dr. Green repeats the measurement herself, obtaining a similar value (150/90 mm Hg). Concerned about the potential of white coat hypertension and still uncertain what Mr. Jones' "true BP" is, Dr. Green decides to defer adding a second antihypertensive medication to his regimen in order to "first do no harm." She asks him to return again in three months for a repeat BP measurement.
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> Mr. Jones misses the next appointment due to his grandson's birthday, but comes back for the following one (now more than a year after the beginning of this story). At that time his BP is still elevated and Dr. Green prescribes an additional antihypertensive medication. However, shortly after Mr. Jones fills this prescription, he is hospitalized for a stroke that leaves him with slurred speech that fails to improve even after eight weeks of speech therapy. After learning about Mr. Jones' stroke, Dr. Green resolves to work even harder to ensure her patients achieve BP control and installs patient education posters in every exam room.

Scenarios like this play out in ambulatory settings across the nation. Research proves that elevated BP is one of the most important risk factors for stroke and heart disease, and that achieving BP control can lower this risk. Despite this knowledge, opportunities to appropriately escalate anti-hypertensive therapy and address barriers to medication adherence are often missed in the busy workflow of ambulatory clinical practices.

It is doubtful Dr. Green will prevent more strokes and heart attacks by only resolving to work harder or educating her patients to know their blood pressure numbers. But is it possible she would have escalated Mr. Jones' treatment sooner if a system had been in place for Jim Hart to flag high BP values in the chart before she even entered the exam room? Would she have had more time to discuss adding BP medications with Mr. Jones if Judy Thompson were prepared to help her counsel him on diet and medication adherence before he left the practice? Could Mr. Jones have returned earlier, if he did not need to see Dr. Green specifically, because Jim Hart had protocols allowing him to quickly check BP and titrate medications between physician visits?

Adaptive work can help practices like Arcadia Primary Care improve care for hypertension and other chronic medical conditions by helping them "work smarter instead of harder." Far too often, clinicians and health care workers are asked to be more careful or to work harder, when in fact the system in which they work sets them up to fail.

By combining technical work that defines key policies and procedures based on the best available evidence with adaptive work that taps into the practical wisdom of all care team members, we can create reliable and safe workflows that improve the quality of care in the ambulatory setting.

Some background on the ACAP program

The ACAP program is based on the Comprehensive Unit-based Safety Program (CUSP), which has been used effectively to reduce central line-associated bloodstream infections. In 2004 more than 100 intensive care units in the state of Michigan used CUSP in their work to eliminate central line-associated bloodstream infections. Since their success, hundreds of hospitals across the United States have used CUSP to improve care and outcomes for a wide range of problems including patient falls, hospital-acquired infections and medication administration errors. See the list of references at the end of this document to learn more.

How does the ACAP program improve patient care?

First the ACAP program *engages* all clinical and non-clinical staff members whose work can affect patient care. Far too often ambulatory care teams feel like improvement efforts are done to them instead of with them. The ACAP program recognizes that when the care team owns the improvement effort, local culture improves and so does patient care and health outcomes.

Second, the ACAP program uses the care team's *collective wisdom* to identify the best solutions to complex problems. Through their daily work experiences, clinicians and non-clinical team members have a deep understanding of what does and doesn't work well in their practice or health center. They regularly encounter potential and actual problems and routinely come up with on-the-fly solutions (also called "first-order solutions" or "work-arounds") to overcome these problems. By turning one-time fixes into sustainable solutions, the ACAP program improves the quality of care and reduces safety risks for all patients.

Finally, the ACAP program improves teamwork and communication in a practice or health center and creates a culture of quality, leading to real and lasting improvements in patient care.

Respect the wisdom of all care team members

The ACAP program can be used alongside other change models

The core principles of the ACAP program are common to many quality improvement and change models. The five steps (see below) of the ACAP program can be implemented alongside other change models such as Lean Six Sigma or the Institute for Healthcare Improvement's Model for Improvement. In many instances the tools and resources in these other programs complement the ACAP program.

ACAP program overview

The ACAP program includes pre-work and five steps designed to build an evidence-based foundation for reducing defects[1] and improving the reliability of care delivery in your practice or health center.

Getting started: Pre-work

- Assemble the quality improvement (QI) team

- Secure leadership support

- Assess practice context

Step 1: **Conduct improvement science training**

Step 2: **Identify defects**

Step 3: **Engage practice or health center leadership**

Step 4: **Learn from defects**

Step 5: **Use tools to improve**

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1. A defect is anything that happens, clinically or operationally, that you don't want to happen again.

Getting started: Pre-work

Assemble the QI team

The QI team should include members from across the entire practice or health center. Team members representing different roles collaborate throughout the problem-solving process, instead of developing solutions in isolation and then trying to align them. The team should have a designated team leader and include a physician champion, nurse champion, medical assistant and office manager. To effectively lead improvement efforts, the team leader and project champions need to dedicate at least half an hour per week to improvement work. If your practice or health center is part of a larger health system, consider including other staff members such as a pharmacist, care coordinator and/or quality improvement coach on the team. Many projects also benefit from asking one or more patients, family members or representatives from a local community-based partner to join the team.

✕ Tools you can use	How you'll use them
QI team: Roles, responsibilities and tasks form	Clarify mutual expectations for QI team members.
QI team membership form	List QI team member names and contact information in this form.

Secure the support of a health system leader

Involving a health system leader from the beginning is critical to ensuring the QI team's success. As an integral member of the QI team, health system leaders assist in project implementation, secure resources and link the team's activities with the health system's other priorities. The health system leader should regularly participate in team meetings to plan and support project progress. In smaller practices, the physician champion/practice owner and health system leader may be the same person.

Conduct the Medical Office Survey on Patient Safety

Administering a culture survey to the entire practice or health center can identify a variety of contextual factors that affect your practice or health center's ability to successfully carry out improvement work. This can include the availability of resources and actionable data, the ability to address the practice or health center's local culture, interactions among staff members, staffing concerns, patient volume and many other factors. Identifying and measuring these factors can help your QI team gauge readiness for change and address potential barriers to success early in the project.

Questionnaires, such as the Agency on Healthcare Research and Quality (AHRQ) Medical Office Survey on Patient Safety Culture (MSOPS), elicit clinical and non-clinical staff members' attitudes and perceptions about the environment. Staff members complete the survey anonymously, but responses can be reported by job category (for example, nurse, physician or receptionist) or aggregated for the whole practice.

Before administering the survey, explain its purpose to everyone and emphasize that you want to benefit from their wisdom and perceptions, and ensure that they receive feedback on the results. All clinical and non-clinical staff should be included in the survey and it should be repeated on a regular basis but not less than every six months.

Once you have compiled the MSOPS results, the "Culture checkup" tool will help you facilitate the analysis and identify action items.

Assessing context in a small practice or health center with ≤ 5 staff members

For smaller practices with five or fewer staff members, keeping survey responses anonymous can be difficult, necessitating alternative ways to elicit uncensored feedback. One option is to assign a trusted person the job of collecting confidential responses to the survey and create a summary from individual responses. For instance, if one of the four people responding disagree with the statement, "This medical office operates efficiently," these results could be presented as "most of us, but not everyone, agrees or strongly agrees with this statement."

⚒ Tools you can use	How you'll use them
MSOPS (from AHRQ) Click here for link to MSOPS	Learn how to administer a culture survey, and make use of the important data you collect.
Culture checkup tool	Now that you've collected survey results, making them actionable is the important next step. A good debriefing plan will help.

Implementing the program

Conduct improvement science training

A "system" is a set of parts interacting to achieve a common goal. All too often we assume that defects occur because of inexperience, lack of supervision or bad luck when, in fact, care is delivered in imperfect systems. Health care teams need to understand the system in which they work to enable change in their clinical setting. Understanding principles of reliable and safe design, such as the use of checklists and non-judgmental learning from mistakes, as well as the key role of contextual factors, can empower teams to drive improvement in care processes.

What the QI team needs to do

The QI team should arrange for all clinical and non-clinical staff members to view the "Improvement science" webinar within the first month of program implementation. This 20-minute webinar introduces staff members to the ACAP program and provides them a basic understanding of improvement concepts, thus allowing them to productively participate in ACAP activities. Viewing the webinar can be done in large groups, several small groups or during individual sessions depending on what is convenient for staff.

🔧 Tools you can use	How you'll use them
"Improvement science" webinar Contact linda.murakami@ama-assn.org to receive video link	Watching this webinar will help staff: • Understand how seemingly minor defects in routine care for chronic medical conditions can lead to significant patient harm over time • Identify system failures that can impact the reliability and safety of care delivery • Apply specific design approaches to improve health care quality and avoid adverse outcomes
"Improvement science" webinar attendance sheet	This form will help you track how many staff members have viewed the webinar.

Before we introduced this project to our practice, our providers and support staff were quick to blame others for our hypertension control rates. Some blamed patients for not taking their medications as prescribed. Our new EMR was seen as a problem because providers felt they could not document or flag properly. Outside physicians and hospitals, too, were seen as the problem due to incomplete referrals or records. We had to teach our staff that suboptimal hypertension control rates are the result of faulty systems, not bad clinicians, failing patients or EMR vendors. Our control rate is not going to budge if all we do is exchange blame. After watching the 'Improvement science' webinar you could see a few lights go on. It's definitely a journey, though. Clinicians take care so personally.

—Nurse champion, IHO: BP team member

A *defect* is anything that happens, clinically or operationally, that you don't want to happen again.[2] Your practice or health center can identify potential defects from a variety of information sources including reviewing the results of clinical performance reports (e.g., HEDIS[3]) and patient satisfactions surveys (e.g., CG-CAHPS[4]), reviewing clinical records from unexpected patient outcomes, periodically assessing checklist implementation and asking for direct feedback from clinicians, staff members and even patients and families. One of the simplest and most powerful ways to identify defects is to simply ask team members two basic questions found in the "Staff hazard assessment":

- In your view, what is the most likely way this medical office might fail to adequately respond to the next patient with high blood pressure?
- Please describe what you think can be done to prevent or minimize that failure.

These questions can be framed in the context of a particular chronic medical condition that is the focus of your improvement work. Individual clinicians and staff members often have great insight into challenges that keep the practice from providing optimal care and the potential solutions to these problems. The QI team should tap into this knowledge and use it to guide improvement efforts.

What the QI team needs to do

First, the QI team should **gather information** about defects in care using available and relevant data sources. As clinicians and staff members are usually best informed about gaps in care delivery, we recommend systematically gathering their perspectives using the "Staff hazard assessment" (described above) and classifying any concern for suboptimal care as a potential defect. Second, the team should **follow up** on the defects identified by team members through a process known as *collective sensemaking*. Finally, the team should **prioritize** defects based on frequency and risk of harm to patients.

To maximize the chances of gathering all relevant information, the team leader (or his/her designee) should hand out a "Staff hazard assessment" to all of the practice's clinical and non-clinical staff members:

Timing: We recommend handing out the "Staff hazard assessment" at the end of the "Improvement science" webinar viewing session (described above in Step 1) and providing a collection box or envelope for drop-off.

Collective sensemaking: After collecting responses to the "Staff hazard assessment," the QI team then groups them by commonly identified defects (such as "communication," "step in the care process," "equipment failure" or "documentation") and summarizes how often respondents identified each group of defects. (For example, what percent of total responses were related to communication?)

What comes first? The QI team then prioritizes the identified defects using the following criteria:

- Likelihood of the defect harming the patient

- Severity of harm the defect causes

- How commonly the defect occurs

- Likelihood that the defect can be prevented in daily work

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2. Examples of a defect in the ambulatory setting include misplacing a critical lab result, understaffing the practice during a holiday or having a patient with uncontrolled hypertension go longer than four weeks without any interaction from the primary care team.
3. HEDIS: Healthcare Effectiveness Data and Information Set
4. CG-CAHPS: Clinician and Group Consumer Assessment of Healthcare Providers and Systems

✕ Tools you can use	How you'll use them
Staff hazard assessment	Gauge perceptions of gaps in care delivery and tap into team wisdom to proactively identify opportunities for improvement.

I take my patients' hypertension seriously, and I treat it aggressively. But when I saw my practice's "Staff hazard assessment" responses, someone pointed out that we occasionally realize a patient has hypertension after he or she has already left the office. Our nursing champion audited patient charts for more data. She confirmed what our staff member had reported—I wasn't treating some patients with hypertension because they had other pressing issues. For years, I had been telling my staff what to improve. It became clear that they should be telling me that information.

—Primary care physician, IHO: BP team member

Step 3: Engage practice or health center leadership

Ideally the health system leader will have joined the QI team at the beginning of the project and already is a central part of the team, but Step 4: "Learning from defects" is when they will play a particularly important role in ensuring the QI team's success.

The health system leader can facilitate open discussions about potential defects, help with prioritization and goal setting and bring resources to the project. In a large group practice or health system, the health system leader can lobby for policy changes, promote access to resources and help resolve inter-departmental issues. In smaller practices, the ACAP physician champion/practice owner may also be the health system leader.

Many practices or health centers are associated with an accountable care organization (ACO), quality innovation network-quality improvement organization (QIN-QIO) or multi-practice improvement network. If yours is, your QI team leader should contact the ACO, QIN-QIO or multi-practice network leadership to identify potential partners who can advocate for your practice or health center system, and link your practice or health center's improvement efforts to larger initiatives.

What the QI team needs to do

The QI team leader (or designee) should schedule monthly team meetings with the health system leader (preferably on site at the clinic location, if part of a larger system) and prepare the health system leader for meaningful participation in these meetings. The meetings may include a tour of the practice or health center and scheduled time to discuss the following:

1. MSOPS results

2. Prioritized list of potential defects compiled from the "Staff hazard assessment" and solutions proposed by team members

3. Pertinent information about your practice or health center that the health system leader may not know (for example, the number of patients with diagnosed hypertension, the percentage of patients with hypertension who have adequately controlled blood pressure, etc.)

The health system leader is a key member of the QI team. Because they understand how the QI team's efforts fit within the practice or health system's strategic priorities, they are able to help the team navigate policies and secure resources needed to achieve team objectives.

Advice on team leadership

We recommend giving special attention to using best practices for communication and teamwork, because communication failure and ineffective teamwork are known to contribute significantly to an improvement program's success and to delivering ideal care. Three important goals for team leaders to consider are:

1. Setting the right tone

2. Understanding the stages of group development

3. Being a good team member while playing a leadership role

To promote effective teamwork, convene a meeting to discuss roles on the team and who will fill them. Discuss what kinds of team characteristics people have appreciated in their past work.

Ask: In your experience, what has made a successful team? How would you like to see this team function to provide the best quality improvement work and most enjoyable environment?

Revisit desired norms periodically. Also check in with the team frequently about how work is going and whether anything needs to be changed.

🛠 Tools you can use	How you'll use them
Tools for leadership development	Learn about and build the skills your leaders need to engage the team and make a difference.

We discussed our BP control rates with the team at a monthly meeting. Our medical assistants were concerned that the new automated BP machines we are using were inaccurate. They wanted to go back to taking manual BP measurements. We knew we had to build our project around BP measures our clinicians believed were valid. Our executive sponsor, who had helped us procure the automated BP machines, suggested that we compare blood pressure measurements taken manually to those taken using the automated BP machines. We found that the automated BP machines were accurate and also found information from the published literature that corroborated our findings. Our executive sponsor helped ensure that the team understood the value and validity of automated BP measurement. Her suggestions and help were a crucial component of our success.

—Primary care nurse, IHO: BP team member

Step 4: Learn from defects

The "Learning from defects through collective sensemaking" worksheet helps care teams use a structured approach to understanding the issues. Similar to a concise root-cause analysis, the learning from defects (LFD) worksheet begins by answering four basic questions:

1. What happened?

2. Why did it happen?

3. How will you reduce the likelihood of this defect happening again?

4. How will you know the likelihood is reduced?

The QI team members should apply what they learned from the "Improvement science" webinar (Step 1) and results of the MSOPS (see page 5, "Getting started: Pre-work") to inform their answers to question #3 above.

What the QI team needs to do

The QI team should collectively address the one or two highest-priority defects (identified above during Step 2) by walking through each step of the LFD worksheet. Then the team should devise an action plan to put the highest scoring interventions in place. After you are comfortable using and explaining the LFD process, you should regularly discuss your LFD projects during QI team meetings.

For practices or health centers associated with an ACO, QIN-QIO or multi-practice improvement network, your team may find it useful to consider tools and resources available from these organizations as you use the LFD worksheet. Depending on the practice context, some of the tools provided by the ACO, QIN-QIO or multi-practice improvement network may prove useful in addressing commonly encountered defects in care processes.

> **When starting out, your QI team may want to start with "low hanging fruit" and progress to more difficult problems in order to maintain momentum to improve care.**

⚒ Tools you can use	How you'll use them
"Learning from defects through collective sensemaking" worksheet	Use this tool to lead discussions that engage team members in characterizing defects, uncovering system-level causes and developing plans for improving quality and avoiding harm. We recommend learning from at least one defect each quarter.

The office received notice this week from Memorial Hospital that Mrs. G was admitted through the ED for a stroke. Upon further examination of her record, we identified that she was hypertensive the last time she visited and we placed her on medications. However, we noticed she had not been in for three months to follow-up and also noticed she had no medication refills. We went through the 'Learning from defects through collective sensemaking' process at our next monthly meeting. We agreed to develop a weekly/monthly system to pull reports for our patients with hypertension and be pro-active in issuing reminders for re-visits/re-evaluations to the office or, at least, ask our patients to report their BP measures to us.

—Health system leader, IHO: BP team member

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Step 5: Use tools to improve

Often, QI teams find it easier to achieve their goals by using forms, checklists, new equipment, and other tools to support their efforts and the work of clinicians and staff members caring directly for patients. Throughout this document we have described several tools you can use as you implement the ACAP program. In this section, we list additional practical tools to help your team improve communication, teamwork and leadership skills. You can find these, and others, in the appendices. Each tool comes with detailed instructions.

What the QI team needs to do

Review the scores from your MSOPS and the group of defects from the "Staff hazard assessment." Determine which areas are most in need of improvement (for example, poor teamwork culture). Collaborate with QI team members to select a tool that best addresses their concerns.

🛠 More tools you can use	How you'll use them
Daily huddle	Improve team communication and ensure patients get evidence-based care. Click here to watch a huddle being conducted.
"Daily huddle" form	Improve team communication and role clarity while caring for your patients.
Shadowing another professional	Identify and improve communication, collaboration and teamwork between different disciplines.

After a few project gains, we realized that we could tap the wisdom of key staff every day by implementing a morning and afternoon huddle. Now, twice a day, Dr. Jordan and Albert (her medical assistant) hold a brief discussion about which patients are being seen and what their needs may be, to address their chronic or preventive care regardless of why the patient made the appointment. Albert documents needs on the daily huddle form and reviews with Dr. Jordan in less than 5 minutes before each day's session. We are not just 'implementing ACAP,' we are building reliable care and quality improvement into our infrastructure.

—IHO: BP team member

The ACAP program is an ongoing process

The ACAP program is never truly finished. For example, create a process to ensure that new staff members and leaders who join after the ACAP program is underway watch the "Improvement science" webinar. You could include this webinar in their job orientation. Additionally, repeat the "Staff hazard assessment" on a periodic basis (e.g., quarterly), and/or keep the forms readily available for practice or health center staff to complete whenever they identify new defects. Teams should also repeat the MSOPS regularly (but not less than every six months) to determine if there has been any improvement or if new contextual issues arise that might impact the success of improvement efforts.

Getting help

For most teams, the ACAP program represents a lot of new material. One of the best ways to learn a new skill is to ask questions, practice the skill and learn from feedback. If you have any questions, please email us at ihobp. surveys@ama-assn.org for assistance.

🛠 ACAP tools

To receive these adaptable tools for use in your practice, contact linda.murakami@ama-assn.org.

Tools for leadership development
Build the skills leaders need for engaging a team

QI team: Roles, responsibilities and tasks form
Set the foundation for a productive improvement team

QI team membership form
Collect important information about your team members

Improvement science training attendance sheet
Keep track of your education sessions

Culture checkup tool
Lead a conversation about your patient care culture results

Staff hazard assessment
Empower your clinical and non-clinical staff to voice their patient quality and safety concerns

Learning from defects through collective sensemaking worksheet
Identify system factors that can lead to defects

Daily huddle form
Improve daily team communication for effective patient encounters

Shadowing another professional form
Learn how others perform their roles for improved collaboration and teamwork

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